In re Patent Application of:
RAYNOR ET AL.
Serial No. **09/993,387**
Filing Date: **NOVEMBER 16, 2001**

In the Claims:

Claims 1 to 10 (Cancelled).

11. (Currently Amended) A solid state imaging device comprising:

a two-dimensional array of pixels defining an image plane;

readout electronics comprising at least one store circuit laterally adjacent the image plane for reading signals therefrom; and

a multiconductor signal bus connected between said array of pixels and said readout electronics, said multiconductor bus comprising a respective conductor to provide a dedicated readout channel for ~~each and every~~ only one pixel of said two-dimensional array of pixels defining the image plane.

Claim 12 (Cancelled).

13. (Previously Presented) A solid state imaging device according to Claim 11, wherein each pixel comprises:

a photosensitive diode; and

a switching circuit for resetting and discharging said diode, said switching circuit consisting of

a first transistor for applying a reset pulse, and

a second transistor for connecting said diode to a conductor within said multiconductor signal bus.

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14. (Previously Presented) A solid state imaging device according to Claim 11, wherein said multiconductor signal bus comprises a plurality of vertically stacked conductors.

15. (Previously Presented) A solid state imaging device according to Claim 11, wherein said readout electronics are laterally adjacent one side of the image plane.

16. (Previously Presented) A solid state imaging device according to Claim 11, wherein said readout electronics are laterally adjacent two opposing sides of the image plane.

17. (Previously Presented) A solid state imaging device according to Claim 11, wherein all pixels of said array of pixels are reset simultaneously and are read out simultaneously.

18. (Previously Presented) A solid state imaging device according to Claim 11, wherein said at least one store circuit comprises a plurality of store circuits, with a store circuit corresponding to each pixel and comprising:

a first store circuit for storing a reset value; and

a second store circuit for storing a read out value, with the read out value of a given pixel being modified by the stored reset value for that pixel.

19. (Previously Presented) A solid state imaging device according to Claim 18, wherein each store circuit further comprises:

a third store circuit for storing a second reset value, with a current reset value and a current read out value being processed simultaneously based upon application of a new reset pulse.

20. (Previously Presented) A solid state imaging device according to Claim 19, wherein said readout electronics further comprises:

a differential amplifier connected to said first, second and third store circuits; and

a reset circuit for placing said differential amplifier in a common mode reset state prior to reading a signal.

21. (Currently Amended) A solid state imaging device comprising:

a two-dimensional array of pixels defining an image plane, each pixel comprising a photosensitive diode, and a switching circuit for resetting and discharging said diode;

a multiconductor signal bus connected to said array of pixels, said multiconductor bus comprising a respective conductor to provide a dedicated readout channel for ~~each and every~~ only one pixel of said two-dimensional array of pixels defining the image plane; and

readout electronics laterally adjacent the image plane and connected to said multiconductor signal bus for reading signals from said array of pixels.

22. (Previously Presented) A solid state imaging device according to Claim 21, wherein said switching circuit

consists of:

a first transistor for applying a reset pulse; and

a second transistor for connecting said diode to a conductor within said multiconductor signal bus.

23. (Previously Presented) A solid state imaging device according to Claim 21, wherein said signal bus comprises a multiconductor signal bus comprising a plurality of vertically stacked conductors.

24. (Previously Presented) A solid state imaging device according to Claim 21, wherein said readout electronics are laterally adjacent one side of the image plane.

25. (Previously Presented) A solid state imaging device according to Claim 21, wherein said readout electronics are laterally adjacent two opposing sides of the image plane.

26. (Previously Presented) A solid state imaging device according to Claim 21, wherein all pixels of said array of pixels are reset simultaneously and are read out simultaneously.

27. (Previously Presented) A solid state imaging device according to Claim 21, wherein said at least one store circuit comprises a plurality of store circuits, with a store circuit corresponding to each pixel and comprising:

a first store circuit for storing a reset value; and

a second store circuit for storing a read out value, with the read out value of a given pixel being modified by the

stored reset value for that pixel.

28. (Previously Presented) A solid state imaging device according to Claim 27, wherein each store circuit further comprises:

a third store circuit for storing a second reset value, with a current reset value and a current read out value being processed simultaneously based upon application of a new reset pulse.

29. (Previously Presented) A solid state imaging device according to Claim 28, wherein said readout electronics further comprises:

a differential amplifier connected to said first, second and third store circuits; and

a reset circuit for placing said differential amplifier in a common mode reset state prior to reading a signal.

30. (Currently Amended) A method for making a solid state imaging device comprising:

defining an image plane using a two-dimensional array of pixels;

placing readout electronics laterally adjacent the image plane for reading signals from the array of pixels; and

connecting a multiconductor signal bus connected between the array of pixels and the readout electronics, the multiconductor bus comprising a respective conductor to provide a dedicated readout channel for ~~each and every~~ only one pixel of the two-dimensional array of pixels defining the

image plane.

Claim 31 (Cancelled).

32. (Previously Presented) A method according to Claim 30, further comprising forming each pixel to have a photosensitive diode, and a switching circuit connected thereto for resetting and discharging the diode.

33. (Previously Presented) A method according to Claim 32, wherein the switching circuit consists of a first transistor for applying a reset pulse, and a second transistor for connecting the diode to a conductor within the multiconductor signal bus.

34. (Previously Presented) A method according to Claim 30, wherein the multiconductor signal bus comprises a plurality of vertically stacked conductors.

35. (Previously Presented) A method according to Claim 30, wherein the readout electronics are placed laterally adjacent one side of the image plane.

36. (Previously Presented) A method according to Claim 30, wherein the readout electronics are placed laterally adjacent two opposing sides of the image plane.

37. (Previously Presented) A method according to Claim 30, wherein the image device is configured so that all pixels of the array of pixels are reset simultaneously and are

read out simultaneously.

38. (Previously Presented) A method according to Claim 30, wherein the at least one store circuit comprises a plurality of store circuits, with a store circuit corresponding to each pixel and comprising a first store circuit for storing a reset value, and a second store circuit for storing a read out value, with the read out value of a given pixel being modified by the stored reset value for that pixel.

39. (Previously Presented) A method according to Claim 38, wherein each store circuit further comprises a third store circuit for storing a second reset value, with a current reset value and a current read out value being processed simultaneously based upon application of a new reset pulse.

40. (Previously Presented) A method according to Claim 39, further comprising:

connecting a differential amplifier to the first, second and third store circuits; and

connecting a reset circuit to the differential amplifier for placing the differential amplifier in a common mode reset state prior to reading out a signal.